

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of)	Examiner: Spahn, Gay
McCoy, Edward)	
)	
Serial No.: 10/775,519)	Group Art Unit: 3673
)	
Filed: February 10, 2004)	
)	
For: SYSTEM FOR)	Attorney Docket No.: 18525/04071
DRAINING SOIL)	
PROFILES)	

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT AND RESPONSE TO ACCOMPANY RCE

Dear Sir:

The following is responsive to the Office Action mailed November 1, 2005 and the Advisory Action mailed April 10, 2006. Should any fees or extensions be due in this case, applicant hereby requests such extensions and grants the Commissioner authorization to charge such fees, and to credit any overpayments to deposit account 03-0172.

Please amend the above-identified application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.

Remarks begin on page 7 of this paper.

AMENDMENTS TO THE SPECIFICATION

In the Office Action mailed November 1, 2005, the Examiner had objected to the current wording of page 4, line 5 of the specification. The first paragraph of page 5 is hereby amended to recite: “This phenomena results in the need for localized hand watering of high elevation locations within some putting greens, a costly and time consuming operation. Thus, it is evident that a high sand content root zone placed over a gravel layer provides rapid drainage during and shortly after a rainstorm. However, after this rapid drainage phase has ended, perched water that is retained in the root zone results in localized soil wetness and laterally non-uniform soil water contents across naturally contoured putting greens and athletic fields.”

AMENDMENTS TO THE CLAIMS

Listing of the Claims:

1. (currently amended): A system for draining fluid from a layered soil profile having a sandy root zone layer above a gravel layer, comprising:

~~(a) a layered soil profile comprising at least a first layer and a second layer beneath said first layer, wherein the material of said first layer is different from the material of said second layer;~~

~~—— (b) means for determining the particle sizes of the materials comprising said layers;~~

~~—— (c) means for determining the fluid retention properties of said layers based on said particle size;~~

~~—— (d) a plurality of elongated porous drainage members, wherein each of said drainage members further comprises individual drainage member comprising a length of fiberglass having a distribution of pore sizes compatible with said predetermined particle sizes and said fluid retention properties of the layered soil profile;~~

~~—— (e) means for inserting said the plurality of drainage members positioned into said the layered soil profile at substantially regular intervals to form forming an array; and~~

~~—— (f) wherein, each of said the drainage members extending from said first the root zone layer substantially through said second the gravel layer and to provide a substantially continuous porous pathway for draining said fluid from said the layered soil profile.~~

2. (cancelled)

3. (currently amended): The system of claim 1, wherein the orientation of said the drainage members within said soil profile is substantially vertical.

4. (currently amended): The system of claim 1, wherein each length of fiberglass ~~further~~ comprises at least one of fiberglass rope and fiberglass tape.

5. (currently amended): The system of claim 4, wherein said the length of fiberglass has a diameter of about 0.64 to 2.54 cm.

6. (currently amended): The system of claim 1, wherein said the fluid to be drained is perched water retained in one or more layers of said layered soil profile.

Claims 7-11 (cancelled)

Claims 12-20 (cancelled)

21. (cancelled)

22. (previously presented): The system of claim 1, wherein the drainage members are spaced about 24 inches (61 cm) from one another.

23. (new): The system of claim 1, wherein one or more of the individual drainage members are inserted into the layered soil profile through pilot holes formed by driving one or more tines into the soil using a mechanical actuator.

24. (new): The system of claim 23, wherein the mechanical actuator is a hydraulic ram.

25. (new): The system of claim 23, wherein fiberglass rope drainage members are inserted into the pilot holes using a mechanical actuator.

26. (new): The system of claim 25, wherein insertion of the fiberglass rope drainage members into the pilot holes is facilitated by using a stiffening support means.

27. (new): The system of claim 26, wherein the stiffening support means is selected from one or more of a small diameter wire, a plastic dowel, and a wooden dowel affixed along the axis of the fiberglass rope.

28. (new): The system of claim 1, wherein fiberglass tape drainage members are inserted into the soil using a thin, reinforced metal plate.

29. (new): The system of claim 28, wherein the fiberglass tape drainage members are reversibly affixed to the reinforced metal plate and the assembly is driven into the soil using a mechanical actuator.

30. (new): A system for draining fluid from a layered soil profile having a sandy root zone layer above a gravel layer, comprising:

a plurality of elongated porous drainage members, each individual drainage member comprising a length of fiberglass rope or tape having a diameter of about 0.64 to 2.54 cm, and a distribution

of pore sizes compatible with predetermined particle sizes and fluid retention properties of the layered soil profile, the plurality of drainage members positioned and spaced apart from one another in the layered soil profile at substantially regular intervals of about 24 inches (61 cm), whereby each of the drainage members extends from the root zone layer substantially through the gravel layer to provide a substantially continuous porous pathway for draining fluid from the layered soil profile.

31. (new): A system according to claim 30, wherein drainage members comprising fiberglass rope are inserted into the layered soil profile using a mechanical actuator through pilot holes formed by driving one or more tines into the soil using a mechanical actuator and wherein drainage members comprising fiberglass tape are inserted into the soil using a thin, reinforced metal plate

32. (new): A system for draining fluid from a horizontally layered soil profile having a sandy root zone layer above a gravel layer, comprising:

a plurality of elongated porous drainage members positioned and spaced apart from one another at substantially regular intervals, each individual drainage member comprising a length of wetable fibrous material having sufficient structural integrity to resist free fluid flow and a distribution of capillary pore sizes compatible with predetermined particle sizes and fluid retention properties of the layered soil profile, each of the drainage members extending from the root zone layer substantially through the gravel layer to provide a substantially continuous porous pathway for draining fluid from the layered soil profile.

33. (new) A system according to claim 32 wherein the wetable fibrous material is selected from fiberglass rope and fiberglass tape.

34. (new) A system according to claim 32 wherein each individual drainage member has a diameter of about 0.64 to 2.54 cm.

35. (new) A system according to claim 32 wherein the plurality of drainage members positioned and spaced apart from one another in the layered soil profile at substantially regular intervals of about 24 inches (61 cm).

36. (new): A system of claim 33, wherein drainage members comprising fiberglass rope are inserted into the layered soil profile using a mechanical actuator through pilot holes formed by

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driving one or more tines into the soil using a mechanical actuator and wherein drainage members comprising fiberglass tape are inserted into the soil using a thin, reinforced metal plate.

REMARKS

Claims 1-6 and 21-36 are pending in this application. Claims 2 and 21 are objected to, and claims 1-6 and 21-22 are rejected. Claims 1, 3, 4, 5, and 6 are hereby amended. Claims 2 and 21 are hereby cancelled. Claims 23-36 are new. The amendments do not constitute new matter. In view of the above-described amendments and following remarks, reconsideration of claim 1, and claims 3-6 is requested and consideration of new claims 23-36 is also respectfully requested.

Claim Objections

In the Office Action mailed November 1, 2005, the Examiner objected to claim 2 because of incorrect punctuation. Claim 2 has been cancelled, rendering this objection moot. The Examiner also objected to claim 21 under 37 C.F.R. 1.75(c) for failing to further limit the subject matter of a previous claim. Claim 21 is also hereby cancelled, rendering this objection moot.

Section 112 Rejections

In the Office Action dated November 1, 2005, the Examiner had rejected claims 1-6, 21, and 22 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Specifically, the Examiner stated that there was insufficient disclosure for the claimed “means for determining the particle sizes of the materials comprising said layers,” “means for determining the fluid retention properties of said layers based on said particle size,” and “means for inserting said drainage members into said layered profile at substantially regular intervals to form an array.” Applicant’s amendments dated December 27, 2005, addressing these Section 112 rejections, were not entered as indicated by the Advisory Action dated January 20, 2006.

In response to the Advisory Action, the Applicant hereby amends claim 1 to recite: “A system for draining fluid from a layered soil profile having a sandy root zone layer above a gravel layer, comprising: a plurality of elongated porous drainage members, each individual drainage member comprising a length of fiberglass having a distribution of pore sizes compatible with predetermined particle sizes and fluid retention properties of the layered soil profile, the plurality of drainage members positioned in the layered soil profile at substantially regular intervals forming an array, each of the drainage members extending from the root zone layer

substantially through the gravel layer to provide a substantially continuous porous pathway for draining fluid from the layered soil profile.” It is believed that claim 1, as amended, overcomes the Section 112 rejections, as all “means” language has been eliminated from the claim. New claims 23-36 have also been drafted so as to avoid similar Section 112 problems.

Section 103 Rejections

1. In the Office Action dated November 1, 2005, the Examiner rejected claims 1, 3-6, and 22 under 35 U.S.C. 103(a) as being unpatentable over Yamashita, et al. (U.S. Patent No. 4,451,175) (hereinafter “Yamashita”) in view of Applicant’s admitted prior art on page 6, lines 27-29 of the specification.

The Examiner has indicated that claim 2 would be allowable, if rewritten to overcome the Section 112 rejections and claim objection, because Yamashita does not disclose a first layer of a soil profile comprising a sandy root zone and a second layer comprising a gravel layer. Claim 1 has been amended so as to include the limitation of claim 2. Accordingly, claim 2 is hereby cancelled. It is believed that this amendment to claim 1 overcomes the 103(a) rejection.

2. Claim 21 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita in view of Applicant’s admitted prior art on page 6, lines 27-29 of the specification and further in view of Plowman et al. (U.S. Patent No. 5,458,436).

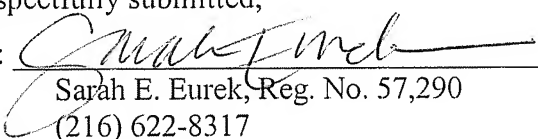
As stated above, claim 21 is hereby cancelled and thus this ground of rejection is rendered moot.

Conclusion

In view of the foregoing remarks, Applicants respectfully request the entry of this Amendment, the Examiner’s reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Date: 5/1/06

Respectfully submitted,

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